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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/689,656	10/22/2003	Mikhail Kejzelman	003301-054	6495
21839 7590 03/03/2009 BUCHANAN, INGERSOLL & ROONEY PC POST OFFICE BOX 1404 ALEXANDRIA, VA 22313-1404				
EXAMINER				
KESSLER, CHRISTOPHER S				
ART UNIT		PAPER NUMBER		
1793				
NOTIFICATION DATE		DELIVERY MODE		
03/03/2009		ELECTRONIC		

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

ADIPFDD@bipc.com

Office Action Summary

Application No.

10/689,656

Applicant(s)

KEJZELMAN ET AL.

Examiner

CHRISTOPHER KESSLER

Art Unit

1793

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 02 January 2009.
- 2a) ☐ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 20, 21, 23-30, 34-40, 48 and 49 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 20, 21, 23-30, 34-40 and 48-49 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Status of Claims

1. Responsive to the amendment filed 2 January 2009, claim 20 is amended.

Claims 20, 21, 23-30, 34-40 and 48-49 are currently under examination.

Status of Previous Rejections

2. Responsive to the amendment filed 2 January 2009, the rejections based on Ozaki are withdrawn. The rejections based on Rutz in view of Kondo are withdrawn. New grounds of rejection are presented, which are accordingly made final.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to

consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

4. Claims 20-30, 34-40 and 48-49 rejected under 35 U.S.C. 103(a) as being unpatentable over Rutz in view of US 4,244,738 issued to Storchheim (hereinafter "Storchheim").

Regarding claim 20, Rutz teaches the invention substantially as claimed. Rutz teaches a process for preparing high-density green compacts (see Summary of the Invention, Detailed Description). Rutz teaches wherein the powder is an atomized, completely alloyed steel powder (see col. 3). Although Rutz does not explicitly disclose the method of atomization, it would have been obvious to one of ordinary skill in the art that any form of atomization may be used, including gas-based or liquid based. Thus one of ordinary skill in the art would have been directed to use water atomization as one species of a small genus.

Rutz teaches that a lubricant is added to the steel powder (see Summary, Detailed Description, cols. 5-6 for example). Rutz teaches that the powder preferably contains 0.1 to about 10 weight % lubricant (see col. 2 and col. 5), said range overlapping the range claimed and establishing a prima facie case of obviousness for that range. It would have been obvious to one of ordinary skill in the art at time of invention to have practiced the method of Rutz, and to have selected a lubricant content in the claimed range, because Rutz teaches the same utility over an overlapping range of lubricants. Applicant is further directed to MPEP 2144.05.

Rutz teaches that the compaction force is preferably in the range of about 276-1379, or more preferably about 345-828 MPa (see cols. 5-6), said range overlapping the range as claimed and establishing a prima facie case of obviousness for that range. It would have been obvious to one of ordinary skill in the art at time of invention to have practiced the method of Rutz, and to have selected a compaction pressure over 800 MPa, because Rutz teaches that the pressure is preferably 345-828 MPa. Applicant is further directed to MPEP 2144.05.

Rutz teaches that the compact is ejected from the die (see cols. 5-6, cols. 8-9).

Rutz does not teach wherein less than about 5% of the powder particles have a size below 45 μm . Rutz teaches that the weight average particle size of the powder is from 1-1000 microns, more desirably 10-500 microns and that the maximum particle size is desirably less than 350 microns (see col. 3). Rutz teaches that a variety of other powders including pre-alloyed steel powders may be used in the invention (see cols. 2-3).

Storchheim teaches a method of hot pressing particulates (see title, abstract). Storchheim teaches that particles are loaded into a die and compacted as is known in the art (see cols. 4-5). Storchheim teaches that particles are used which are larger than the standard particles used for powder metallurgy processes in order to obtain advantageous properties (see col. 5 and col. 19 and Corrections). Storchheim teaches that the particles should have a uniform size in order to yield uniform properties in the finished part (see col. 6). Storchheim teaches that the size of the particles is such that a surface area to volume ratio (SA/V) is within 3-1000 (see col. 5 and col. 19). Thus, the

particle size distribution taught by Storchheim substantially overlaps that taught by Rutz (cited above), and Storchheim teaches that all of the particles should be greater than 45 μm . Storchheim further teaches that the method is applicable to powders such as steel (see col. 9).

It would have been obvious to one of ordinary skill in the art at time of invention to have practiced the method of Rutz, and to have selected the particle size in the range overlapping that of Storchheim, because Storchheim teaches that the use of these powders can cause better isotropic properties for the finished parts (see col. 6).

Regarding claim 21, Rutz teaches mixing the powder with graphite and other additives (see cols. 5-6, for example), said process step being well established in the art of powder metallurgy.

Regarding claim 23-25, Rutz in view of Storchheim is applied to the claim as stated above. Storchheim teaches that the size of the particles is such that a surface area to volume ratio (SA/V) is within 3-1000 (see col. 5 and col. 19). Thus, Storchheim teaches that all of the particles should be greater than 106 μm .

Regarding claims 26-28, Storchheim teaches that the size of the particles is such that a surface area to volume ratio (SA/V) is within 3-1000 (see col. 5 and col. 19), said range including 212 μm . It would have been obvious to one of ordinary skill in the art at time of invention to have selected an average particle size above 212 μm , because Rutz and/or Storchheim teach the same utility over an overlapping range. Storchheim also teaches that the particles should be roughly of the same size (see col. 6). Thus, it

would have been obvious to one of ordinary skill in the art that all of the particles should be greater than 212 μm . Applicant is further directed to MPEP 2144.05.

Regarding claim 29, Rutz in view of Storchheim is applied to the claim as stated above. Storchheim teaches that the particles should be roughly of the same size (see col. 6). Thus, it would have been obvious to one of ordinary skill in the art to have selected a particles size and the maximum particle size not exceeding 2 mm. Applicant is further directed to MPEP 2144.05.

Regarding claim 30, Rutz teaches to add graphite at about 0.5% (see col. 6), said process step being well established in the art of powder metallurgy.

Regarding claim 34, Rutz teaches wherein the iron powder can be mixed with alloying elements (see cols. 2-3, col. 7, Table III, for example) to obtain a desired final composition.

Regarding claim 35, Rutz teaches that the compaction force is preferably in the range of about 276-1379 (see cols. 5-6), said range overlapping the range as claimed and establishing a prima facie case of obviousness for that range. It would have been obvious to one of ordinary skill in the art at time of invention to have practiced the method of Rutz, and to have selected a compaction pressure over 900 MPa, because Rutz teaches that the pressure is preferably 276-1379 MPa. Applicant is further directed to MPEP 2144.05.

Regarding claim 36, Rutz teaches that the compaction force is preferably in the range of about 276-1379 (see cols. 5-6), said range overlapping the range as claimed and establishing a prima facie case of obviousness for that range. It would have been

obvious to one of ordinary skill in the art at time of invention to have practiced the method of Rutz, and to have selected a compaction pressure over 1000 MPa, because Rutz teaches that the pressure is preferably 276-1379 MPa. Applicant is further directed to MPEP 2144.05.

Regarding claim 37, Rutz teaches that the compaction force is preferably in the range of about 276-1379 (see cols. 5-6), said range overlapping the range as claimed and establishing a prima facie case of obviousness for that range. It would have been obvious to one of ordinary skill in the art at time of invention to have practiced the method of Rutz, and to have selected a compaction pressure over 1100 MPa, because Rutz teaches that the pressure is preferably 276-1379 MPa. Applicant is further directed to MPEP 2144.05.

Regarding claim 38, Rutz teaches wherein the compaction is performed at ambient temperature (see cols. 6-9).

Regarding claim 39, Rutz teaches wherein the compaction is performed at elevated temperature (see cols. 6-9).

Regarding claim 40, Rutz teaches that the compact is sintered at a temperature of over 1100°C (see col. 6), said process step being well established in the art of powder metallurgy.

Regarding claim 48, Rutz teaches wherein the alloying elements may be Ni (see cols. 2-3, col. 7, Table III, for example).

Regarding claim 49, Rutz does not disclose wherein the die is lubricated (external lubrication). The choice of lubricating (or not lubricating the die is well

established in the art. It would have been obvious to one of ordinary skill in the art at time of invention to use the compaction without external lubrication in order to save processing steps.

Response to Arguments

5. The declaration under 37 CFR 1.132 filed 23 June 2008 is sufficient to overcome the rejection of claims based upon Ozaki. Applicant has stated that a method including a completely alloyed steel powder according to the invention shows unexpected results over the a method including the iron powder of Ozaki.

Applicant's arguments filed 2 January 2009 have been fully considered and are persuasive in part. Applicant argues that the declaration filed 23 June 2008 does compare the invention to the closest prior art. This argument is persuasive.

Although the examiner does not agree with the other arguments made concerning Ozaki, these arguments are moot.

Applicant argues that Kondo teaches away from using powders for powder forging for pressing and sintering processes. While not necessarily agreeing with this argument, Kondo does teach that powder forging powders have different properties and requirements than press and sinter powders (see SUMMARY OF THE INVENTION).

Applicant's further arguments are moot in view of new grounds for rejection.

Conclusion

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. 3,787,205 teaches to use a particle size overlapping that claimed in a powder forging method.
7. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to CHRISTOPHER KESSLER whose telephone number is (571)272-6510. The examiner can normally be reached on Mon-Fri, 9-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Roy King can be reached on (571) 272-1244. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Roy King/
Supervisory Patent Examiner, Art
Unit 1793

csk